

REMARKS

Applicants respectfully request that the Information Disclosure Statement originally submitted on November 19, 2003, and resubmitted on August 17, 2005, be acknowledged by the Examiner.

Claims 1 and 16 have been amended. Claims 1-6 and 9-16 are pending in this application, with claims 9-15 being withdrawn from consideration. Applicants reserve the right to pursue these and other claims in this and other applications.

Claim 16 stands rejected under 35 U.S.C. § 102(b) as being anticipated by McCollum et al. (U.S. Patent No. 3,948,755) ("McCollum"). Reconsideration is respectfully requested.

McCullom describes a process for recovering and upgrading hydrocarbons from oil shale and tar sands by contacting the oil shale and tar sands with a dense-water-containing fluid, in the presence of a catalyst. Claim 16 recites, *inter alia*, a "heavy oil reforming method which comprises reacting a heavy oil containing vanadium with water ... *in the absence of a reaction accelerator*." McCullom does not disclose or suggest reacting the heavy oil in the absence of a reaction accelerator. Accordingly, claim 16 is not anticipated by McCollum and Applicants respectfully request withdrawal of the rejection.

McCollum focuses on the removal of sulfur and requires the presence of a catalyst for generating a hydro conversion reaction. The hydro conversion reaction is a reduction reaction using hydrogen as a reducing agent. The invention focuses on the removal of vanadium by scavenging the vanadium in the form of vanadium oxide to eliminate the vanadium from heavy oil. The reaction in which the vanadium is

oxidized is an oxidation reaction. The oxidation reaction of the invention is different than the reduction reaction of McCollum.

Claims 1-6 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over McCollum. Reconsideration is respectfully requested.

Claim 1, like claim 16, recites *inter alia*, a "heavy oil reforming method which comprises reacting a heavy oil containing at least one of vanadium and sulfur with water ... *in the absence of a reaction accelerator*." Accordingly, for at least the reasons set forth above with respect to claim 16, claim 1 should be allowable over McCollum. Claims 2-6 depend from claim 1 and should be allowable as well. Applicants respectfully request the withdrawal of the rejection as to claims 1-6.

The reforming reaction disclosed in McCollum is in the presence of a catalyst such as a metal oxide. Additionally, the object to be reformed is a solid material, such as oil shale, which is of lower quality than the heavy oil. The invention relates to reforming a heavy oil, which is a liquid, by eliminating vanadium and/or sulfur from the heavy oil in the absence of a reaction accelerator. This is possible when under the prescribed conditions of from 300°C to 500°C and from 10 MPa to 30 MPa.

Claims 1, 3-6 and 16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Wilson et al. (U.S. Patent No. 3,733,259) ("Wilson"). Reconsideration is respectfully requested.

Wilson relates to the removal of asphaltenes and metals from heavy petroleum oils by dispersing the oil in steam. Wilson does not disclose or suggest reacting the heavy oil in the absence of a reaction accelerator, as is required by claims 1 and 16. Accordingly, claims 1 and 16 should be allowable over the cited art. Claims 3-6

depend from claim 1 and should be allowable as well. Applicants respectfully request that the rejection of claims 1, 3-6 and 16 be withdrawn.

The present application describes, for example, that the scavenger is alumina. Wilson discloses alumina only as a catalyst support and not as a catalyst per se. The scavenger of the invention is different from a reaction accelerator or catalyst. Also, Wilson, like McCollum, focuses on a removal of sulfur and requires the presence of a catalyst for generating a hydro conversion reaction. The oxidation reaction of the invention is different than the reduction reaction of Wilson.

In view of the above amendment, Applicants believe the pending application is in condition for allowance.

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Respectfully submitted,

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